

EXECUTIVE SUMMARY

Ashtabula River Partnership Comprehensive Management Plan

The Comprehensive Management Plan (CMP) is a feasibility-level planning document for a one-time cleanup of contaminated sediments in the lower Ashtabula River and Harbor. The CMP was developed by the Ashtabula River Partnership (ARP); an organization made up of the members of the diverse community interested in the Ashtabula River and Harbor sediment remediation and ecological restoration. The Partnership was established in 1994 with a stated purpose of exploring how to effectively remediate the contaminated sediments in the Ashtabula River and Harbor. The Partnership includes over 50 official partners, including the United States Environmental Protection Agency (USEPA), the United States Army Corps of Engineers (USACE), the Ohio Environmental Protection Agency (OEPA), the United States Fish and Wildlife Service (USFWS), as well as many other Federal, State, and local affiliates. The USACE, Buffalo District, working as a partner and at the direction of the Partnership, has taken the lead as the Project Manager in the preparation of the CMP and Environmental Impact Statement (EIS).

The lower Ashtabula River and Harbor was designated a Great Lakes Area of Concern (AOC) in 1985 by the International Joint Commission (IJC). The lower Ashtabula River is defined as the two-mile reach extending from the upper limit of the Federal navigation channel to the mouth. Beneficial use impairments include:

1. Restriction on fish and wildlife consumption.
2. Degradation of fish and wildlife populations.
3. Fish tumors and other deformities.
4. Degradation of benthos.
5. Restrictions on dredging activities.
6. Loss of fish and wildlife habitat.

Contaminants contribute to these beneficial use impairments.

Primary contaminants of concern in the lower Ashtabula River include numerous chlorinated organic compounds, in particular polychlorinated biphenyls (PCBs); polyaromatic hydrocarbons (PAH); heavy metals such as cadmium, mercury, lead, and zinc; and low level radionuclides (RAD) such as uranium, radium, and thorium. These contaminants have been detected in Ashtabula River sediments, water, and fish.

The consequences of accumulated contaminants are many, including restrictions on dredging and disposal; reduced commercial shipping; recreational boating; habitat loss; and impacts on biota, including the consumption of fish. The disposal of dredged sediments with PCBs equal to or in excess of 50 mg/kg is regulated under the Toxic Substances Control Act (TSCA) and cannot be open lake disposed. The remaining sediments, with elevated levels of contaminants also cannot be disposed of at open lake

disposal sites. A total of more than 1,000,000 cubic yards of minor to heavily contaminated sediments are situated in the lower Ashtabula River. The estimated mass of PCBs in the river sediment is appreciable, approximately 11,018 kilograms. The largest concentration of contaminated sediments has collected within the Federally authorized channels.

Contaminated sediments continue to migrate slowly downstream into the Lower River, Outer Harbor, and Lake Erie. Storm events may greatly accelerate this process causing scouring and the resuspension of sediments and associated contaminants, which may periodically compromise water quality standards. Navigation channel maintenance has been limited in the lower Ashtabula River, due to the lack of an appropriate disposal site for these contaminated sediments. Dredging and vessel activities have caused resuspension of sediments, suffocating bottom organisms and disrupting fish habitat. Storm events may greatly accelerate this process causing scouring and the resuspension of sediments and associated contaminants, which may compromise water quality standards in Lake Erie. The estimated mass of PCBs in the river sediment is appreciable, approximately 11,018 kilograms. Finally, structural developments (i.e., bulkheads and docks) have essentially eliminated shallow aquatic habitats, which provide habitat for aquatic life.

The Ohio Environmental Protection Agency (OEPA) is coordinating a Remedial Action Plan (RAP) for the Ashtabula AOC. The overall goals of a RAP are to restore all beneficial uses to an AOC, prohibit the discharge of toxic substances in toxic amounts, and virtually eliminate the discharge of persistent toxic substances. Many of the identified impairments of beneficial uses in the Ashtabula River AOC are directly related to contaminated sediment, more specifically to the PCB, RAD, and PAH mass associated with the contaminated sediment. Removal and remediation of the PCB, RAD, and PAH mass is critical to comprehensive restoration of the area's ecological integrity.

The CMP recognizes the beneficial use impairments of the Ashtabula River AOC, and addresses the goals of the ARP through:

1. environmental remediation of the lower river; and
2. Maintenance of relatively uncontaminated outer harbor navigation shipping channels by dredging and open-lake disposal.

The CMP sets forth a Recommended Environmental Dredging Plan that would address contaminated sediment removal and disposal. The Recommended Environmental Dredging Plan also includes recommendations for supplemental aquatic ecosystem restoration measures. It is expected that the project will accomplish project incremental goals/objectives and work towards remediation of the six beneficial use impairments identified in the Ashtabula River AOC, thus attaining the goals of the Partnership.

The contaminants in the Ashtabula River and Harbor sediments originate primarily from unregulated discharges in the Fields Brook watershed. Fields Brook has been placed on

the USEPA National Priorities List of uncontrolled hazardous waste sites (Superfund), and is being remediated by the USEPA under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). Ashtabula River contaminated sediment removal is proposed under other legislation, including Corps of Engineers authorities, particularly Environmental Dredging (Section 312 of the Water Resources Development Act of WRDA 1990, as amended by Section 205 of WRDA 1996 and Section 224, WRDA 1999), following a Federal Planning and National Environmental Policy Act (NEPA) based approach. The Partnership project will expedite the remediation, address the commercial navigation goals which would not be addressed under CERCLA, and avoid litigation costs often associated with CERCLA.

The Lake Erie/Ashtabula River Area of Concern has been identified as a priority area for re-mediation in Section 205 of the Water Resources Development Act (WRDA) of 1996 and in the U.S. Army Corps of Engineers PGL No. 49 section 5.c. The Ashtabula River Partnership first assessed the Ashtabula River Partnership Lower Ashtabula River Remediation Project with regard to Section 312 (b) of WRDA 1990, Environmental Dredging, as Amended by Section 205 and 206 of WRDA 1996, as promulgated by Corps of Engineers Policy Guidance Letter No. 49 and EC 1105-2-210. Also, Section 224 WRDA 1999.

Justification for dredging under the 312(b) and 206 authorities must include a habitat assessment procedure (HAP) analyses. In this case a HAP developed by the State of Ohio Environmental Protection Agency was utilized. Essentially, the HAP analyses utilize comparative biological field survey data and developed indices to identify problems and to compare existing environments and remedial alternatives. The Ohio Habitat Assessment Procedure (HAP) and assessment/evaluation is presented and discussed in more detail in EIS APPENDIX EA- J SECTION 312(b) AND 206 ECOLOGICAL RESTORATION/ PRESERVATION ANALYSES.

The 312(b) and 206 assessment/evaluation found the project to be justified under the authority. Both ecological and economic benefits exceed associated project costs. Review per Criteria for Decision Making for Ecological Restoration/Preservation found the project to be: Total and Incrementally Cost Effective, Acceptable to the Ashtabula River Partnership, Complete, Efficient, Effective, developed and to be implemented in a Partnership Context, and Reasonable in Cost.

Subsequently, the commercial channel reach in the project area down stream of the 5th Street Bridge was examined from an operations and maintenance and 312(a) authorities perspective. The O&M and 312(a) authorities were found to be applicable to that channel area. Both ecological and economic benefits exceed associated project costs.

The "Project Area" and associated problems were assessed from an ecological perspective for this study. Problems including contaminants, lack of physical habitat, dredging, and vessel traffic were identified for different areas in the river, and goals and objectives were developed.

In addition to considering the No Action scenario, the Ashtabula River Partnership considered a wide array of alternatives during Plan Formulation including potentially capping, dredging, dewatering/transfer, treatment technologies, transportation, and disposal of TSCA and Non-TSCA dredged sediment and supplemental aquatic ecosystem restoration. Alternatives were assessed and evaluated for environmental and social acceptability, for engineering and economic feasibility, and for best meeting the project objectives.

The assessment identified the Deep Dredge scenario as the optimized and “Recommended Environmental Dredging Plan” for contaminated sediment removal. The Deep Dredge scenario removes the amount of contaminated sediment consistent with the ARP’s goals, moderates costs and adverse impacts, and meets incremental ecological restoration goals for the river. The assessment also identified measures for aquatic ecosystem restoration. These latter measures would be undertaken separately as an independent project under the Section 206 authority.

The Recommended Environmental Dredging Plan involves:

1. dredging (environmentally/low turbidity) of approximately 696,000 cubic yards of contaminated sediments, including up to 150,000 cubic yards that would be handled and disposed of in accordance with Toxic Substances Control Act (TSCA) regulations based upon available dredging technology, marine equipment and levels of PCB contamination;
2. developing and utilizing a transfer/dewatering facility on Norfolk Southern Railroad property located between Slip 5A (a.k.a. the Conrail Slip) and the Ashtabula River;
3. transport of the dewatered dredged sediment to a developed upland landfill at the State Road disposal site; and
4. disposing of the sediment, as appropriate, in the developed upland landfill facilities at the State Road disposal site.

Dredging would be performed by a marine operation utilizing a derrick boat to excavate contaminated sediments with an environmental or enclosed clamshell bucket, or other low turbidity dredge technology. The sediments would be loaded into dredge scows/barges and transported to a transfer/dewatering site. The use of this special clamshell bucket in combination with silt curtains placed around the excavation would minimize the dispersion of resuspended sediments. Environmental protection measures were incorporated into the Recommended Environmental Dredging Plan and will be further addressed in the detailed project design, construction, operation, and maintenance plans to meet Federal, State, and local regulations.

The Recommended Environmental Dredging Plan includes a shoreline transfer/dewatering facility at the 1993 Interim Dredging and Disposal project Interim

Confined Disposal Facility (CDF) site (Interim CDF) located between Slip 5A (a.k.a. the Conrail Slip) and the Ashtabula River on Norfolk Southern property. The area estimated for the transfer/dewatering facility is between 5 - 10 acres in size. All the dredged sediment would be transported by scow/barge to the transfer/dewatering facility staging area. Sediments would be allowed to settle out (initially in barges) and the water decanted to the facility. The sediments would be off-loaded, dewatered to meet the legal requirements for containment of no free liquid prior to being final landfilled, and loaded into trucks for transport to the final disposal facility. The transfer/dewatering facility would initially employ the use of passive technologies for sediment dewatering, and collection and treatment of decant and elutriate water to meet state water quality discharge requirements. The Recommended Environmental Dredging Plan subsequently includes the use of multi-media filtration and carbon column treatment methods to treat decant and elutriate water.

When project remedial actions are completed, the transfer/dewatering site would be razed, contaminated sediments transported to the upland landfill disposal site for final containment and the transfer/dewatering site restored for future planned uses. The Non-TSCA sediments presently stored in the Interim CDF would be disposed of at the Ashtabula River Partnership's Non-TSCA upland landfill disposal facility.

The Recommended Environmental Dredging Plan includes the use of the former RMI Sodium Plant site (State Road site) as the upland landfill disposal site for the project. The State Road site has been disturbed by past development and recent demolitions, is of little value to fish and wildlife, and contains a small wetland within the northeast corner of the site that would be avoided. The Fields Brook Superfund remediation project material is being disposed of at the State Road site. There is sufficient site capacity for the Ashtabula River Partnership dredged elevated PCB and RAD material to be disposed of in a new landfill facility adjacent to the Fields Brook disposal facility. There is also sufficient capacity for the dredged Non-TSCA ARP dredged contaminated material to be disposed of in a new landfill facility adjacent to the Fields Brook disposal facility. Assessment/evaluation determined that this is the overall preferred disposal alternative and accordingly is the Recommended Environmental Dredging Plan for the project disposal component. The upland landfill disposal facilities at the State Road site would also include leachate collection, treatment, and monitoring facilities, closure, and post closure monitoring measures.

An alternative plan for contaminated sediment disposal would be the use of existing disposal facilities to dispose of TSCA and/or Non-TSCA classified sediments. An existing permitted TSCA landfill facility does not currently exist, but such an alternative would be evaluated if it became available and economically justified. The ARP would like to reserve the option whereby the ARP and/or project contractor could dispose of the Non-TSCA dredged sediments in appropriate existing environmentally acceptable disposal facilities, if demonstrated to be substantially more cost-effective. Specifically, dewatered Non-TSCA dredged sediments would be transported to, and disposal of, in an existing solid waste disposal facility that could accept the material under a current or modified permit.

The recommendations set forth in the CMP for aquatic ecosystem restoration will not be addressed in the design document for the environmental dredging project. The ARP's environmental dredging project addresses contaminated sediment removal only. It is the intent of the ARP to undertake the recommended aquatic ecosystem restoration measures as an independent project under the Section 206 (or similar) authority. Presuming funds are available, it is the further intent of the ARP to complete the planning and design of the aquatic ecosystem restoration measures concurrent with the design and implementation of environmental dredging so that when dredging is complete, the aquatic habitat restoration measures would be implemented in the target areas.

Construction of the ARP project facilities and operations for implementation of environmental dredging will likely occur over a five-year time frame to include in the first two years contractor mobilization, construction of project facilities (i.e., transfer/dewatering facilities and landfill disposal facilities) and three years for dredging and disposal operations. Dredging would start at the upper turning basin and proceed downstream to just past the U.S. Coast Guard Station. Dredging would likely occur from upstream to downstream, if possible, to recapture any resuspended sediments and associated contaminants. Aquatic ecosystem restoration, as it is related to this project, will be undertaken as a separate project under the Section 206 (or similar) authority, assuming the availability of Section 206 funds and a Non-Federal sponsor, concurrent with the design and implementation of environmental dredging. Construction of this project would follow completion of the remediation of Fields Brook.

Dredging the Ashtabula River sediments may have short-term negative environmental effects on the river and, to a lesser extent, Ashtabula Harbor and Lake Erie. However, the long-term beneficial impacts far outweigh the adverse effects, most notably the environmental remediation and continuation of commercial shipping and recreational boating. Dredging the sediments from the river would remove those contaminants associated with the sediments in the Ashtabula River aquatic ecosystem. Further, dredging sediments from the river would eliminate the ability of these contaminants to be resuspended and transported downstream and into Lake Erie. Dredged sediments from operations and maintenance dredging, that is suitable for open-lake disposal, and/or shoreline excavated sediment discharged into the initially dredged Project Area, would provide an immediate clean cover and expedite ecological recovery. Future sediment deposits would be essentially clean and able to support a better variety of benthic organisms, enabling the river to achieve a higher diversity of aquatic species.

It is expected that within several years of project implementation sediment and benthos quality will be improved markedly; and, that within another few years the area fishery will be improved markedly. Species listed as sensitive can all be expected to increase in numbers after sediment removal and a consequent influx of clean sediment from upstream areas. Species presently not found in the Ashtabula but found in the Grand and Conneaut will return to the Ashtabula. The sensitive species that are absent from the Ashtabula represent all trophic levels of the fish community. The removal of contaminated sediments will prepare the Ashtabula for the entrance of species such as

lake sturgeon, mooneye, muskellunge, pugnose minnow, black-chin shiner, blacknose shiner, pugnose shiner, longnose sucker, lake chubsucker, creek chub-sucker, tadpole madtom, banded killifish, burbot and sand darter into the system.

The total estimated Project Cost, with contingencies, is \$47,615,000¹. The project is estimated to be cost-shared \$32,772,000 Federal and \$14,843,000 Non-Federal, based on project outputs (commercial navigation and environmental restoration), and in accordance with the authorities addressed in the CMP. The Ashtabula City Port Authority has been identified as the project's local sponsor and will provide all the necessary items of local cooperation, including real estate requirements and the collection and distribution from local and private sources of the Non-Federal share of overall project costs. The State of Ohio has pledged \$7,000,000 toward the project. The present worth of the proposed project costs is \$51,319,900. An evaluation of the benefits of completing the ARP Project results in a favorable benefit-cost ratio of 2.66.

In conclusion, this Comprehensive Management Plan for the Ashtabula River is a tangible reflection of the progress of the Partnership toward the ultimate goal of removing contaminated sediments from the lower Ashtabula River and Harbor. This document provides the basis for the first of two public reviews of the CMP. It is our goal to continue the successful Partnership process. We expect that we will evaluate additional options, and ultimately enhance the project and reduce spending, while satisfying regulatory requirements.

¹ Included in these costs were expenditures over the 50-year life of the project for: Disposal Site Post Construction Monitoring (\$1,301,300) and Annual Maintenance Expenditures at the Disposal Site (\$1,307,900).

Summary of Derivation of Average Annual Costs-Recommended Plan-October 2000 Prices

Total Project Construction Costs and First Costs

Construction Costs	
Dredging Costs	\$11,460,200
Dewatering Costs	\$ 4,895,600
Landfill Costs-TSCA	\$ 2,834,700
Landfill Costs- Non TSCA Sampling & Analysis	\$10,319,800
During Dredging & At The Transfer Facility	\$ 816,600
At The Disposal facility- After Construction	\$ 173,100
Construction Contingencies	\$ 6,702,100

<u>Total Construction Costs</u>	\$37,202,100
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Study Costs And Engineering And Design During Construction	\$ 4,876,200
Construction Management	\$ 2,555,100
Real Estate- Section 312, O&M	\$ 372,400

<u>First Costs</u>¹	\$45,005,800
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Investment Costs

Project First Costs To Be Average Annualized	\$45,005,800
Interest During Construction ²	\$ 5,531,600

Investment Costs To Be Average Annualized	\$50,537,400

Average Annual Costs

Interest And Amortization (.06678897) Disposal Site	\$ 3,375,400
Post Construction Monitoring ³	\$ 26,000
Annual Maintenance ⁴	\$ 26,200

Average Annual Costs ⁵	\$ 3,427,600
Present Worth Factor for 6.375%	14.97253
Present Worth Of Average Annual Costs	\$51,319,853
Rounded PW of Average Annual Costs	\$51,319,900

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- (1) Project First Costs provided by Cost Estimating came to \$47,615,000. Included in these costs were expenditures over the 50-year life of the project for Disposal Site Post Construction Monitoring (\$1,301,300) and Annual Maintenance Expenditures at the Disposal Site (\$1,307,900). These types of costs are normally presented as average annual costs. Consequently, these expenditures were subtracted from the \$47,615,000 to arrive at a construction cost of \$45,005,800. These Post Construction Disposal Site Monitoring Costs (\$1,301,300) and Post Construction Disposal Site Maintenance Costs (\$1,307,900) were converted to average annual dollars and are reflected in Disposal Site Average Annual Costs.
- (2) Construction Costs used to develop Interest During Construction (\$44,633,400) were computed by subtracting from Total First Costs (\$45,005,800), the projects Real Estate costs (\$372,400). IDC was based on 16 different construction cost components, a four-year construction period and monthly compounding using a 6.375 percent annual interest rate.
- (3) Disposal Site Post Construction Monitoring costs for a 50 year evaluation period were \$1,301,300. These costs were converted to an average annual dollar value. This average annual value came to \$26,000. This average annual value reflects a 6.375 percent annual interest rate, a 50-year project life and October 2000 price levels.
- (4) Disposal Site Maintenance costs for the 50 year evaluation period were \$1,307,900. These costs were converted to an average annual dollar value. This average annual value came to \$26,200. This average annual value reflects a 6.375 percent annual interest rate, a 50-year project life and October 2000 price levels.
- (5) Average Annual Costs reflect a 6.375 annual interest rate, a 50-year project life and October 2000 price levels.